



Montana Fish, Wildlife & Parks

May 23, 1999

3201 Spurgin Road
Missoula, MT 59804

Environmental Quality Council
Montana Department of Environmental Quality
Montana Department of Fish, Wildlife and Parks
Fisheries Division
Endangered Species Coordinator
Nongame Coordinator
Missoula Office

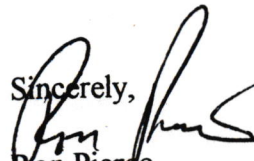
Montana State Library
MT Environmental Information Center
Montana Audubon Council
North Powell Conservation Service
U.S. Army Corp. of Engineers, Helena
U.S. Fish and Wildlife Service, Helena
Montana State Library, Helena
Montana Department of Transportation, Helena
State Historic Preservation Office, Helena
Stan Bradshaw, Big Blackfoot Chapter of TU., P.O. Box 1273 Helena, MT 59624

Ladies and Gentlemen:

Please find enclosed an environmental assessment for a westslope cutthroat trout restoration project near the town of **Helmville**.

Please submit any comment that you have by 5:00 p.m., June 25, 1999 to the Montana Fish, Wildlife and Parks in Missoula at the address listed above. If you have any questions, please feel free to contact me at (406)542-5532.

Sincerely,


Ron Pierce
Fisheries Division

Powell

int. 10/4/99 - 93410

ENVIRONMENTAL ASSESSMENT
Montana Fish, Wildlife & Parks
Douglas Creek Westslope Cutthroat Trout Improvement Project

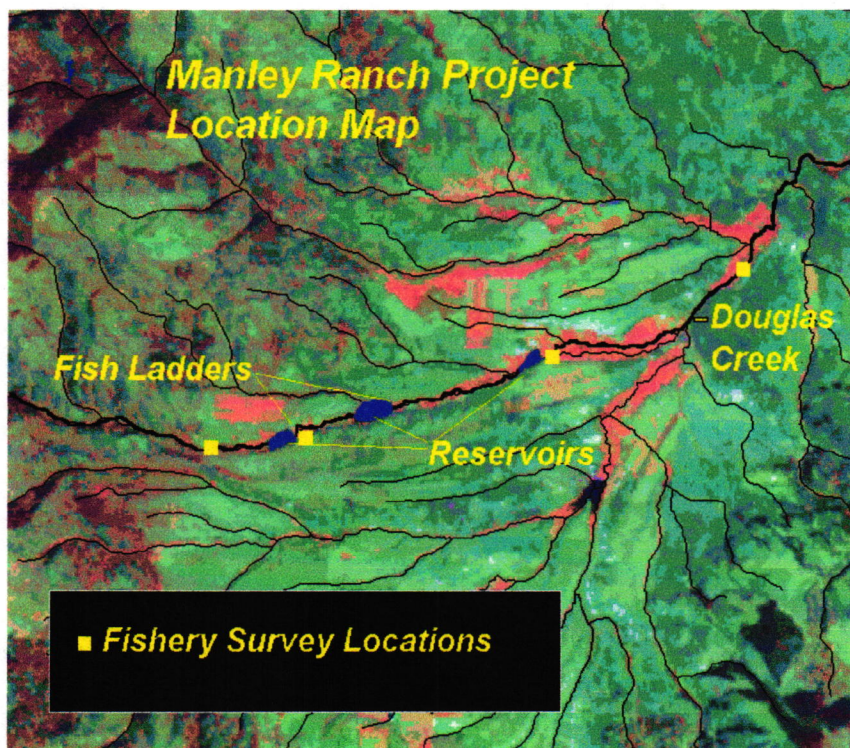
General Purpose: The project is expected to improve migrations, reproduction and future conservation of a disjunct population of pure westslope cutthroat trout by restoring connectivity between a series of irrigation reservoirs and upper Douglas Creek. Douglas Creek is the principal tributary to lower Nevada Creek located near the town of Helmville, Montana.

Location of Project:

This project will be undertaken on Douglas Creek within Township 12 North, Range 12 West, Sections 20 and 21 in Powell County.

II. Need for the Project:

This is a cooperative multi-agency private-lands effort that will restore fish passage to the benefit of westslope cutthroat trout. This project will help conserve and improve the future viability of a disjunct westslope cutthroat trout population by connecting three instream irrigation reservoirs to the headwaters of Douglas Creek, thereby restoring a migration corridor to the headwaters of Douglas Creek. The project will be undertaken on the Manley Ranch near Helmville, Montana. Agencies and conservation groups participating in this effort include the Montana Fish, Wildlife & Parks (FWP), U.S. Fish & Wildlife Service (FWS), and the Big Blackfoot Chapter of Trout Unlimited and North Powell Conservation District.



The Manley Ranch ownership includes a significant portion of Upper Douglas Creek. The headwaters, including a series of three large instream reservoirs, support a disjunct population of pure westslope cutthroat trout. Westslope cutthroat trout is a "species of special concern" in Montana and candidate species of listing under the Endangered Species Act.

Due to the risk of extreme environmental perturbations such as wildfire or mud flow events, the

long term persistence of this disjunct fish population is currently at some risk. This project is the first major fishery improvement project in the Douglas Creek drainage to help will help ensure the long term conservation of this population.

Under existing conditions, Douglas Creek cutthroat trout move downstream into the reservoir system. The two lower reservoirs provide no upstream fish passage. Fishery investigations indicate large concentrations of fish attempting to ascend Douglas Creek during the migration period. Fishery investigations indicate these fish can neither migrate upstream nor reproduce successfully between the lower reservoirs, or in Douglas Creek below the reservoirs. Upon completion of this project, fish that are now trapped in two downstream reservoirs will have the ability to migrate and reproduce in the headwaters of Douglas Creek which includes approximately 6 miles of perennial stream upstream of the upper reservoir. This project will not at this time restore fish passage between the lower reservoir and lower Douglas Creek. Currently, the lower reaches of Douglas Creek provide unsuitable habitat for salmonids due to a wide range of anthropogenic impacts to the riparian ecosystem (Pierce and Schmetterling, 1999).

III. Scope of the Project:

This project will establish upstream fish passage between three downstream reservoirs and upper Douglas Creek. The fish ladders will operate during the cutthroat trout migration period of late spring and summer.

This project will use the Rosgen (1996) methods for construction of two stream channels between the two upper reservoirs. The project calls for the construction of approximately 880 feet of new channel. This offstream channel will function as a fish ladder during the late spring and early summer migration period. The new channel will form a step/pool fish ladder (see enclosure).

IV Environmental Impact Checklist:

Please see attached checklist.

V. Explanation of Impacts to the Physical Environment:

1. Terrestrial and aquatic life and habitats

This project will improve access from the reservoirs upstream into upper Douglas Creek, including spawning runs of adult westslope cutthroat trout. Fish-dependent predators are expected to benefit through the improvement of the fishery.

2. Water quantity, quality and distribution

Although fish ladders will be constructing under dry conditions, a short-term increase in turbidity will occur during the final phases of project construction. The reservoirs will act as settling basin. No increase in turbidity below the reservoirs is expected. Two permits will be secured prior to project implementation: 1) a 310 permit will be obtained from the

North Powell Conservation District; and 3) a Corps of Engineers Nationwide Permit 27 permit will be obtained prior to the project.

4. Vegetation cover, quantity and quality

Revegetation efforts including transplanted sod mats and seeding of native grasses will be included in the project.

7. Unique, endangered, fragile, or limited environmental resources

Westslope cutthroat trout a "species of special concern" in Montana inhabit the Douglas Creek Watershed. We anticipate long-term benefits resulting from the project. The benefits include improved long-term viability of by restoring fish passage between a currently disjunct adult cutthroat trout fishery and spawning and rearing areas upstream of the reservoirs. A bald eagle nest is located in the watershed. These birds are expected to benefit from this project along with the improvement in the fishery. No other endangered or threatened species are found in the project area.

9. Historic and archaeological sites

An archaeologist under contract to the Montana Fish, Wildlife and Parks will survey the project area and ensure compliance with the federal historic preservation regulations. The project will not proceed until cultural clearance is granted.

VI. Explanation of Impacts on the Human Environment:

7. Access to & quality of recreational activities

It is anticipated that the project will provide for improved recreational fishing opportunities.

VII. Discussion and Evaluation of Reasonable Alternatives:

1. No Action Alternative

If no action is taken, the long-term persistence of this disjunct fish population is at increased risk from extreme environmental perturbations such as wildfire or mud flow events. Recreational and wildlife opportunities associated with healthy fishery resources will remain reduced. The impaired condition of the fishery may further influence the decision to list the species as Threatened under the Endangered Species Act.

2. The Proposed Alternative

The proposed alternative is designed to mitigate impacts resulting from a series of

instream reservoirs. This project will restore fish passage, improve reproduction and improve the long-term viability of the Upper Douglas Creek fishery. This alternative would improve fishery dependant species including bald eagles.

VIII. Environmental Assessment Conclusion Section:

1. Is an EIS required? No.

We conclude from this review that the proposed activities will have a positive impact on the physical and human environment.

2. Level of public involvement

The proposed project was reviewed and supported by the public agencies including the Montana Fish, Wildlife and Parks, U. S. Fish and Wildlife Service and the Big Blackfoot Chapter of Trout Unlimited. The Environmental Assessment (EA) is being distributed to all individuals and groups listed on the cover letter. The EA will be published on the Montana Electronic Bulletin Board.

3. Duration of comment period? 30 Days

Public comment will be accepted through 5 P.M. on June 25, 1999.

4. Persons responsible for preparing the EA document.

Ron Pierce
Fisheries Division
Headquarters Region 2 - Missoula Office
Montana Dept. of Fish, Wildlife & Parks
3201 Spurgin Road
Missoula, MT 59804

(406) 542-5532

References

Rosgen, D. 1996. Applied River Morphology, Wildland Hydrology, Pagosa Springs, Colorado

Pierce, R. and D. Schmetterling. 1999. Blackfoot River Restoration Project: Monitoring and Progress Report 1997-1998.
Montana Fish, Wildlife and Parks, Missoula.

MONTANA DEPARTMENT OF FISH, WILDLIFE & PARKS
 3201 Spurgin Road, Missoula, MT 59804
 (406) 542-5532

ENVIRONMENTAL ASSESSMENT

Project Title: Douglas Creek Fish Westslope Cutthroat Trout Improvement Project

Division/Bureau: Montana Fish, Wildlife & Parks

Description of Project: The project will restore fish passage to from a series of instream reservoirs to upstream spawning and rearing areas.

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Terrestrial & aquatic life and habitats			X			X
2. Water quality, quantity & distribution			X			X
3. Geology & soil quality, stability & moisture				X		
4. Vegetation cover, quantity & quality			X			X
5. Aesthetics				X		
6. Air quality				X		
7. Unique, endangered, fragile, or limited environmental resources			X			X
8. Demands on environmental resources of land, water, air & energy				X		
9. Historical & archaeological sites				X		X

POTENTIAL IMPACTS ON THE HUMAN ENVIRONMENT

	MAJOR	MODERATE	MINOR	NONE	UNKNOWN	COMMENTS ON ATTACHED PAGES
1. Social structures & mores				X		
2. Cultural uniqueness & diversity				X		
3. Local & state tax base & tax revenue				X		
4. Agricultural or industrial production				X		
5. Human health				X		
6. Quantity & distribution of community & personal income				X		
7. Access to & quality of recreational and wilderness activities			X			X
8. Quantity & distribution of employment				X		
9. Distribution & density of population & housing				X		
10. Demands for government services				X		
11. Industrial & commercial activity				X		
12. Demands for energy				X		
13. Locally adopted environmental plans & goals				X		
14. Transportation networks & traffic flows				X		

Other groups or agencies contacted or which may have overlapping jurisdiction: U.S. Fish and Wildlife Service,
Army Corp of Engineers, North Powell Conservation District

Individuals or groups contributing to this EA: Montana Fish,
Wildlife and Parks, U.S. Fish & Wildlife Service

Recommendation concerning preparation of EIS: No EIS required.
EA prepared by: Ron Pierce of FWP

Date: May 25, 1999

WATERSHED CONSULTING, LLP

Stream, Riparian, Wetland

RECEIVED

JUL 10 1998

MONT. FISH WILDLIFE & PARKS
REGION 2--MISSOULA

July 9, 1998

Ron Pierce
MT Fish, Wildlife & Parks
3201 Spurgin Road
Missoula, MT 59801

Re: Douglas Creek Manley Ranch irrigation dams fish passage channels

Ron,

Enclosed please find two Total Station planviews, one for each of the two dams; longitudinal profiles for the proposed fish passage channels one for each dam; two pages of step/pool plots for four different step/pool channels; and an average channel geometry dimensions plot. I believe that construction of fish passage channels at both dams is possible, and can be done for \$25,000 to \$35,000 both, material costs being the free variable.

The design of the fish passage channels is based on assumptions that they will be used during full to approximately one foot below full reservoir level, and that outflow at the reservoirs will be regulated by simple wooden headgates with checkboards.

The available slope limited design options for the channels. Although the channels are annotated by Rosgen stream types and fit within the classification's width/depth ratios and slopes, they are primarily step/pool controlled and designed for fish passage. In other words, since their flows will be regulated within narrow range without overbank flooding and they will not have to pass bedload; thus they were not designed for those purposes. The crucial and the most important task was to get the proper step/pool spacing for the given slopes; residual pool depth and jump heights had to conform to requirements for fish passage.

Both passage channels would exit the reservoirs at the existing spillways. Glory-holes would still be used as other means for full reservoir outflows.

At the first dam, only two type of channels are proposed: E5 and A3. The planview and the longitudinal drawing show their locations, slopes and lengths.

At the second dam, five different channel types are proposed: E5, G3, A3+, A3, and E4. Again slopes were the limiting factors. Planview and longitudinal profile show their distribution, slopes and lengths.

The two step/pool drawings show step/pool spacing stratified by the individual slopes. No step/pool spacing was developed for the E types since they don't have any.

Either rocks between 1.5 to 2.5 feet in diameter or/and 3-foot, 1.5- to 2-foot diameter logs are recommended for the steps. Rocks are preferred for the two steepest A types. Medium to large size gravel (2 to 6 inches in diameter) should be used for all but the E5 channels.



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643 Fulkerson Lane
Polson, MT 59860
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E-mail:

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WATERSHED CONSULTING, LLP

Stream, Riparian, Wetland



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missoula.bigsky.net/
watershed](http://missoula.bigsky.net/watershed)



MATERIAL ESTIMATES:

A3+; slope 0.138; length 143 feet; 21 rock weirs	189 rocks 12 sq. yards of gravel
A3; slope 0.075; length 307 feet; 31 rock weirs	279 rocks 25 sq. yards of gravel
A3; slope 0.046; length 121 feet; 11 weirs	99 rocks or 55 rocks and 22 logs 10 sq. yards of gravel
G3; slope 0.028; length 157 feet; 13 weirs	117 rocks or 65 rocks and 26 logs 14 sq. yards of gravel
E4; slope 0.013; length 151 feet; no weirs	14 sq. yards of gravel
TOTAL GRAVEL:	75 sq. yards
TOTAL ROCKS AND LOGS:	690 rocks or 594 and 48 logs
COSTS:	???

STAKING, CONSTRUCTION AND OVERSIGHT COST ESTIMATES:

<u>Staking</u> 4 mandays	\$2,000
<u>Construction</u> 14 days mobilization	\$12,600 \$600
<u>Oversight</u> 13 days	\$6,400

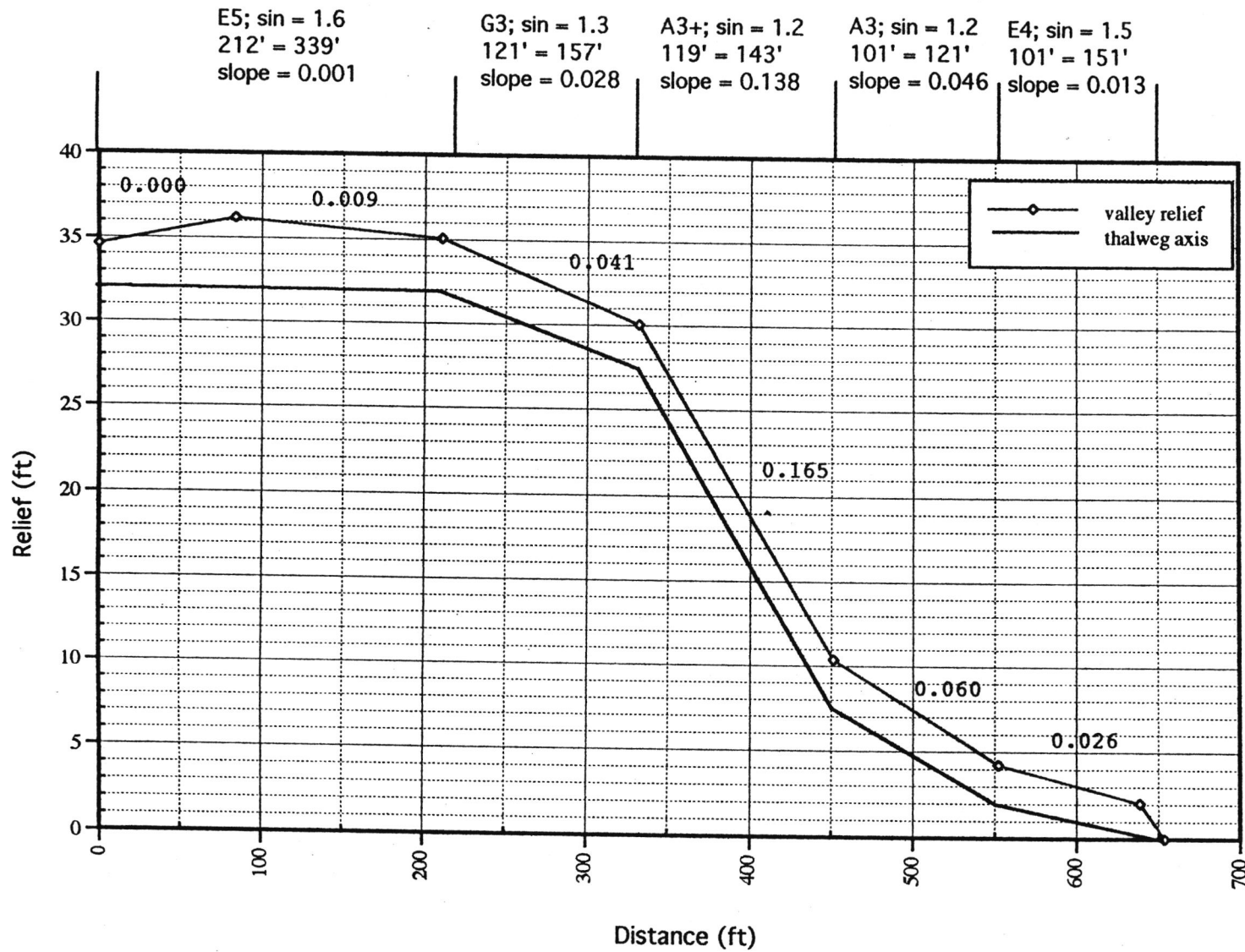
(Since it is extremely important to have the steps set right, oversight is recommended.)

Two wooden headgates \$1,200 or ???

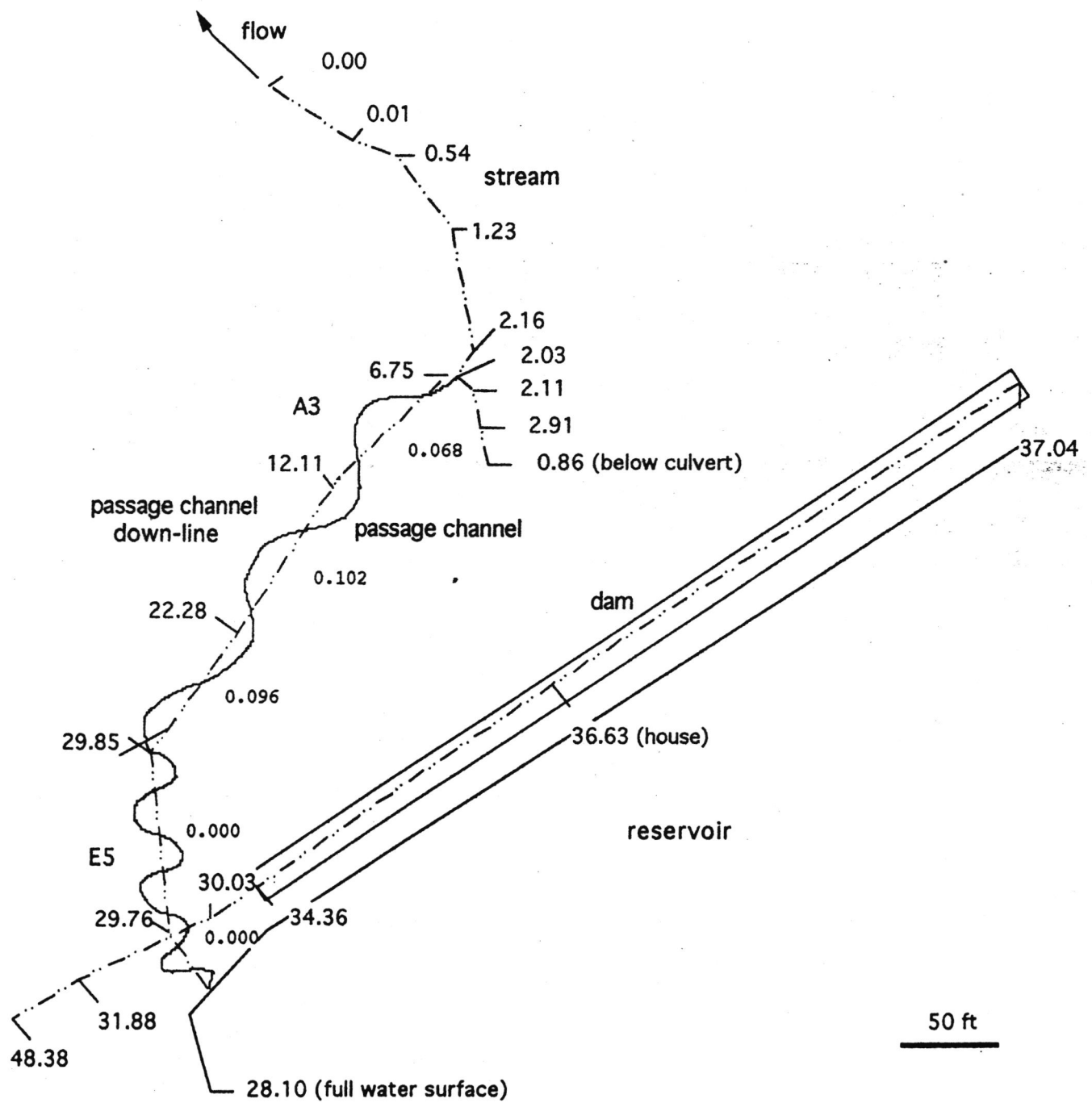
If you have any questions, please give me a call.

Sincerely,
Igor Suchomel

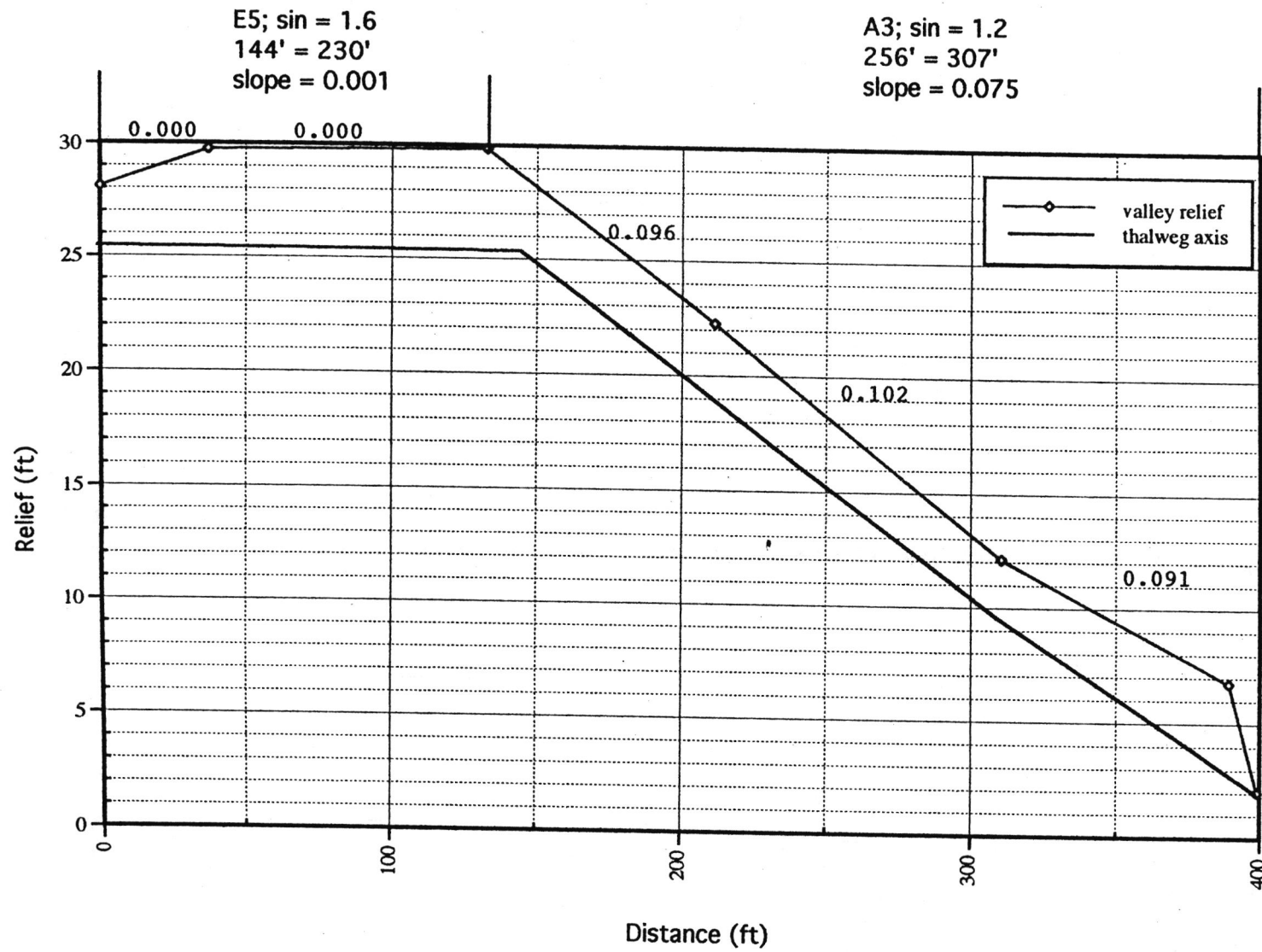
Douglas Creek Manley Ranch - second dam



DOUGLAS CREEK MANLEY RANCH - FIRST DAM



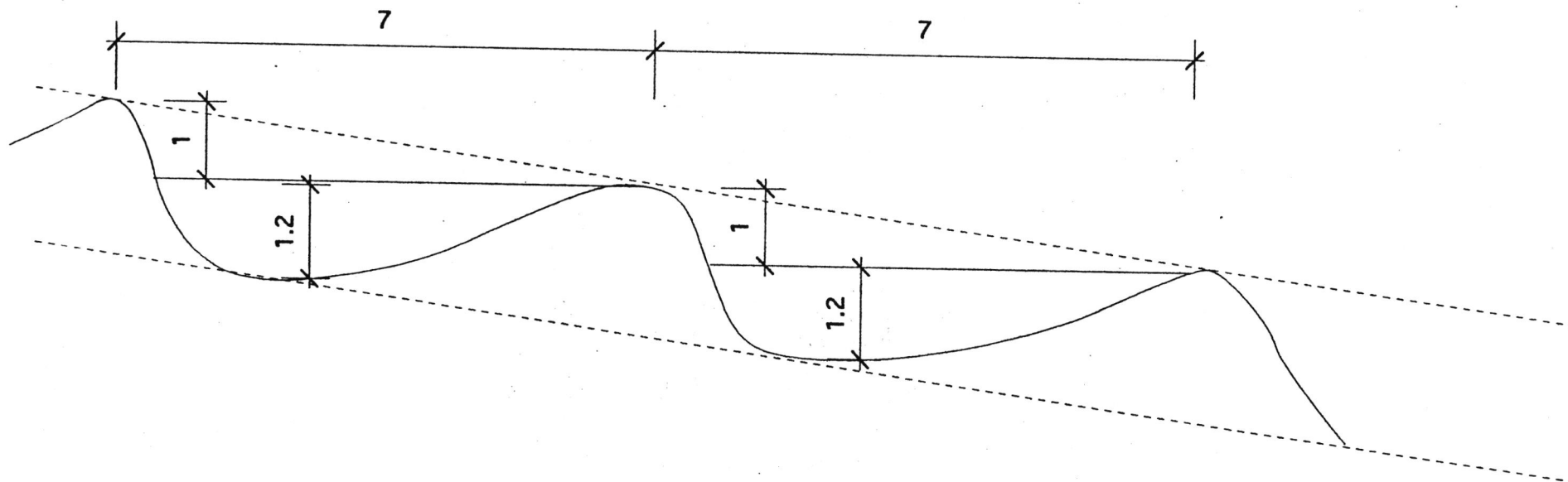
Douglas Creek Manley Ranch - first dam



DOUGLAS CREEK MANLEY RANCH STEP/POOL LONGITUDINAL PROFILES

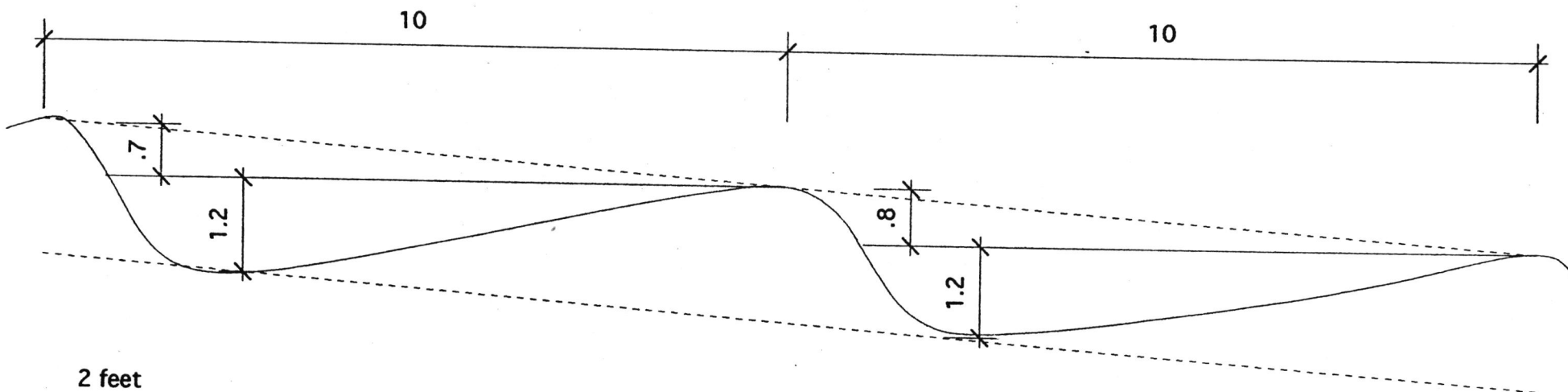
A3+ - slope 0.138:

step/pool spacing 6 to 8 feet; residual pool depth 1.0 to 1.2 feet; jump 0.9 to 1.1 feet; width bkf 4 feet; mean depth bkf 2.5 feet



A3 - slope 0.075:

step/pool spacing 9 to 11 feet; residual pool depth 1.0 to 1.2 feet; jump 0.6 to 0.8 feet; width bkf 4 feet; mean depth bkf 2 feet



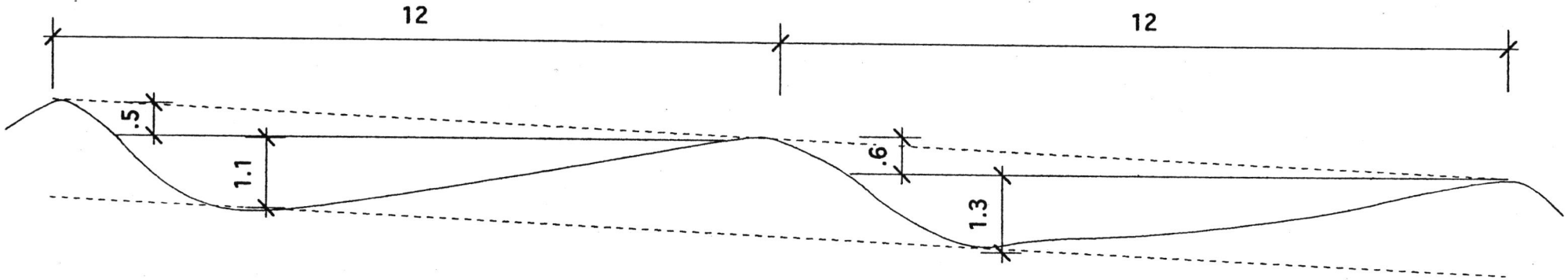
2 feet

1 : 25

DOUGLAS CREEK MANLEY RANCH STEP/POOL LONGITUDINAL PROFILES

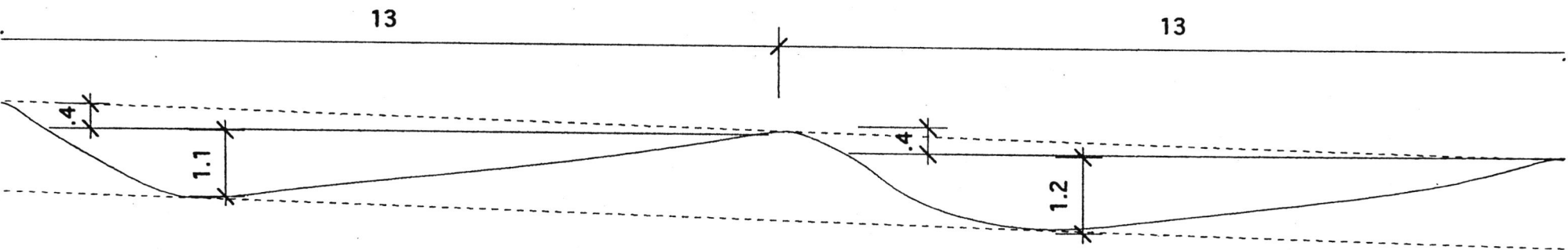
A3 - slope 0.046:

step/pool spacing 11 to 13 feet; residual pool depth 1.1 to 1.3 feet; jump 0.4 to 0.6 feet; width bkf 4 feet; mean depth bkf 1.8 feet



G3 - slope 0.028:

step/pool spacing 12 to 14 feet; residual pool depth 1.0 to 1.2 feet; jump 0.3 to 0.5 feet; width bkf 4.5 feet; mean depth bkf 1.6 feet

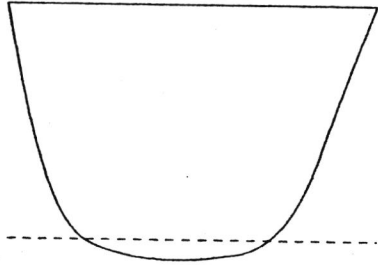


2 feet

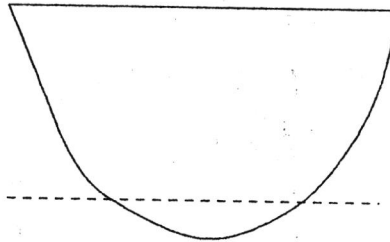
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DOUGLAS CREEK MANLEY RANCH - CROSS-SECTIONS
average dimensions

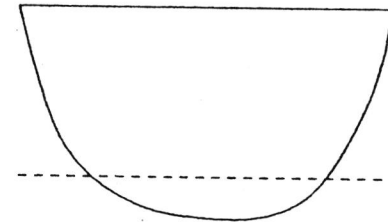
A3+; 0.138
w = 4.0'
d = 2.5'



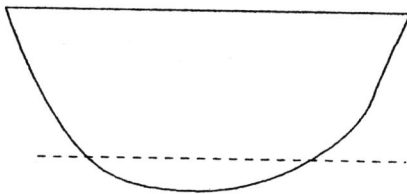
A3; 0.075
w = 4.0'
d = 2.0'



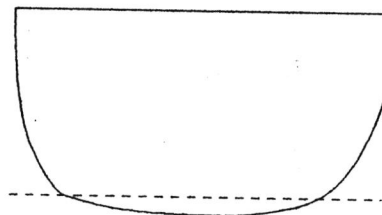
A3; 0.046
w = 4.0'
d = 1.8'



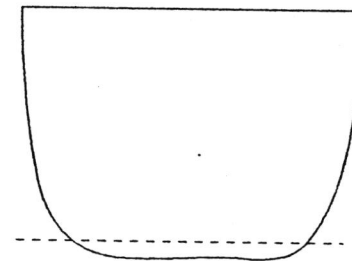
G3; 0.028
w = 4.5'
d = 1.6'



E4; 0.013
w = 4.0'
d = 2.0'



E5; 0.001
w = 3.5'
d = 2.5'



2 feet

1 : 25

DOUGLAS CREEK MANLEY RANCH -SECOND DAM

